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10/764,145	01/23/2004	Jurgen Morton-Finger	22780	6066

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

1732

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/764,145

Applicant(s)

MORTON-FINGER, JURGEN

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment to the specification and claims filed September 5, 2006 has been entered. Claims 1, 2 and 4 are currently amended. Claim 10 is cancelled. Claims 14 and 15 are new. The objection to claim 10 is withdrawn.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,409,949; issued June 25, 2002) in view of Davies (U.S. Patent 5,643,515; issued July 1, 1997) and further in view of Maddock (U.S. Patent 3,032,822) or Bentivoglio (U.S. Patent 6,153,093) or Hills (U.S. Patent 4,849,113).

Regarding claim 1, Tanaka et al. teach a method of extruding PET in a twin-extruder (col. 4, lines 32-35) and degassing the melt in the extruder (col. 4, lines 42-46; col. 6, lines 15, 27-31). Tanaka et al. disclose spinning the melt coming out of the extruder (Table I; col. 6, lines 42-47), but do not fully disclose the details of the spinning process as currently claimed. However, Davies teaches a variant of the well-known spinning process wherein a strip of PET is spun from a spinning head located

downstream from the extruder (col. 3, lines 5-9) and is stretched (col. 2, lines 15-27 and 32-42) and cooled in a water bath to form a flattened strand (col. 2, lines 27-32; col. 3, lines 65 – col. 4, line 2). Further, the material exiting the extruder is inherently cooled as it is processed in the method taught by Davies.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to combine the method of processing recycled PET disclosed by Tanaka et al. with the specific and analogous process of producing a stretched strand/strip from recycled PET disclosed by Davies for the purpose, as taught by Davies, of producing a valuable product from a readily available and inexpensive raw material (col. 1, lines 33-50).

Additionally, neither Tanaka et al. nor Davies expressly disclose employment of a sieve filter wherein the melt pressure upstream and downstream are measured and controlling a rate of the extruder in accord with the measured pressures. However, Maddock (Figure 1, elements (18), (20), (22); col. 1, lines 8-60; col. 2, lines 10-16; col. 3, lines 5-14; Examples I-IV), Bentivoglio (col. 1, lines 9-17; col. 2, lines 8-30; col. 3, lines 49-64) and Hills (col. 13 line 63 – col. 14, line 44) individually disclose employment of a sieve filter wherein the melt pressure upstream and downstream are measured and controlling a rate of the extruder in accord with the measured pressures.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to employ a screen/sieve filter as disclosed individually by Maddock, Bentivoglio or Hills for the purpose of removing contaminants from the product while maximizing production rates (Maddock and Bentivoglio citations

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above), and to maintain a constant die pressure in order to produce a high quality product (Hills citations above).

As to claim 2, Tanaka et al. teach that the raw material is reproduced PET flakes (col. 1, lines 61-62). Additionally, Davies teaches that PET recycled from bottles is the raw material (col. 1, lines 33-50).

As to claim 3, Tanaka et al. teach that the PET is supplied to the extruder with a metering screw (col. 4, lines 40-42).

As to claims 4 and 5, Tanaka et al. do not explicitly teach the extent to which the extruder flights are filled. However, it is noted that the degree to which the extruder flights are filled has an impact on the electrical loading on the extruder motor, the ability to control temperature at the desired locations within the extruder and the pressure in the system. So one having ordinary skill in the art would have to take all of these variables into consideration when determining a value to target the extruder flight loading, as is routinely practiced in the art.

As to claim 6, Tanaka et al. does not explicitly disclose that the screws of the extruder are driven in the same direction. However, it is well known in the art that a twin-screw extruder with screws rotating in the same direction is well suited for biting into irregular ground materials. As such, it would have been obvious to one having ordinary skill to employ the twin-screw extruder taught by Tanaka et al. in such a manner that the screws were rotating in the same direction.

As to claim 7, Tanaka et al. teach connecting a vacuum pump to the extruder-degassing vent (col. 4, lines 42-44).

As to claim 8, Tanaka et al. teach feeding a chain-lengthening substance to the interior of the extruder (col. 6, lines 20-22; col. 4, lines 45-51).

As to claim 11, Tanaka et al. feed the melt to the downstream process with a gear pump (col. 4, lines 50-55).

As to claims 12 and 13, Davies cools the PET strip in a water bath (col. 2, lines 27-32; col. 4, lines 48-52).

As to claims 14 and 15, Maddock (Figure 1, elements (18), (20), (22); col. 1, lines 8-60; col. 2, lines 10-16; col. 3, lines 5-14; Examples I-IV), Bentivoglio (col. 1, lines 9-17; col. 2, lines 8-30; col. 3, lines 49-64) and Hills (col. 13 line 63 – col. 14, line 44) individually disclose employment of a sieve filter wherein the melt pressure upstream and downstream are measured and controlling a rate of the extruder, including the rotation rate and/or feed rate, in accord with the measured pressures.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,409,949; issued June 25, 2002) in view of Davies (U.S. Patent 5,643,515; issued July 1, 1997) and further in view of Maddock (U.S. Patent 3,032,822) or Bentivoglio (U.S. Patent 6,153,093) or Hills (U.S. Patent 4,849,113), as applied to claims 1-8 and 10-15 above, and still further in view of VanBuskirk et al. (U.S. Patent 5,281,676; issued January 25, 1994)

Regarding claim 9, Tanaka et al. teach feeding at least one chain-lengthening substance as discussed in the 103(a) rejection of claim 8 above, but do not explicitly teach the chain-lengthening substance is a lactam or oxazole derivative. However,

VanBuskirk et al., teach processing PET with lactam derivatives as the chain-lengthening substances (col. 3, lines 24-31; col. 4, lines 31-52).

Therefore it would have been *prima facie* obvious to one having ordinary skill at the time of the claimed invention to modify the chain-lengthening substance employed by Tanaka et al. with the lactam derivative chain lengthening agent taught by VanBuskirk et al. because, as taught by VanBuskirk et al., lactam derivatives are well-suited for use as chain lengthening substances in PET applications and do not result in any undesired toxic byproducts such as phenol comprising compounds (col. 4, lines 46-52).

### ***Response to Arguments***

Applicant's arguments filed September 5, 2006 have been fully considered but they are not persuasive.

#### **Applicant's arguments appear to be on the following grounds:**

1. Neither Tanaka et al. nor Davies suggest using the resultant product as a packaging web.
2. Regarding claim 10, which is now substantially included in the body of amended claim 1, controlling a rate of the extruder in accord with measured melt pressures upstream and downstream of a sieve filter is not well-known and would not have been readily employed as asserted by the examiner.

Applicant's arguments are not persuasive for the following reasons:

1. In response to applicant's argument that neither Tanaka et al. nor Davies suggest using the resultant product as a packaging web, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. There is no structural difference between the disclosed web/strip/band and the product produced by Tanaka et al. and Davies. Since the same claimed materials are employed by the same claimed process, the resulting product produced by Tanaka et al. and Davies necessarily has the same claimed effects and physical properties of the claimed process.

2. The examiner has provided references supporting the assertion that controlling a rate of the extruder in accord with measured melt pressures upstream and downstream of a sieve filter is well known and would have been readily employed. Three supporting references are now applied in the rejection above. Additional supporting references can be found listed below

***Conclusion***

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



U.S. Patent 5,527,499 to Miley teaches an extrusion apparatus and method with pressure equalization (col. 1, line 44 – col. 3, line 49).

U.S. Patent 6,328,919 to Pham et al. teaches a method for extruding a thermoplastic sheet (col. 10, lines 9-54).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1732

November 8, 2006

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER

11/13/06